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BIRD-LIFE IN POMERANIA.

BY DR. THEODORE HOLLAND, OF STOLP.

(Concluded from p. 367.)

So much for the Pomeranian woods and coasts in winter; how different are they when we return to the same places in spring! Snow and ice have melted away, "Frühlingslüfte sind erwocht, sie säuseln im wehen bei tag und bei nacht." Nature rises in renewed youth; Earth has laid aside her mourning for departed autumn, and has put on a fresh green robe, so as to receive her blooming son Spring in full state. All creatures follow the example of Mother Earth, and everywhere is joy and gladness. From bush and bough it sounds, Rejoice! spring has come with music and singing, bringing from the south our dear old friends whom we believed to be dead. The merry aerial hosts have again returned, and celebrate their arrival with a grand concert. Fresh comers present themselves, and mutually greet one another.

The Wood Lark (*Heidelerche*), which in the forest takes the place of its cousin, the Sky Lark (*Feldlerche*), as messenger of spring, soars into the air, and warbles in sweet full notes its gratitude to the friendly sun. But the Thrush (*Drossel*) will not be outdone, the whole wood resounds with its jubilant song; and the Hoopoe (*Wiedekopf*), "Kukuksküster," as the country folk call him, with his coloured plumage and crested head, reiterates the greeting no less loudly, though his entire song consists only of one note repeated over and over again.

The Titmice (*Meisen*), Buntings (*Ammern*), and especially the many coloured, loud-voiced flocks of Finches (*Finken*), having



recovered from the privations of winter, welcome one another with new songs from vigorous throats. A pretty Blue-throated Warbler (*Blaukehlchen*) peeps from the erl-bushes near the ditch, twitting his joyous ditty; and Turtle Doves (*Turteltauben*) coo tenderly in the dark secrecy of the fir-trees. Flycatchers (*Fliegenfängen*) and Willow Wrens (*Laubvögel*) are also there, and softly twitter their short strains without intermission, as if their songs were the best of all. And through the spring air, and amid all this joyous life, the mournful song of the Redbreast (*Rothkehlchen*) trembles complainingly, although, in truth, he himself is anything but sad. It is almost as if a sigh of melancholy were heard through the joyous spring voices. But the Golden Oriole (*Goldamsel*) will not suffer it; his mellow whistle drives away every gloomy thought: he is strongly assisted by friend Cuckoo (*Kukuk*), who, according to the popular belief, has again laid aside his hawk-like form and character, and loudly announces his arrival to everyone, especially warning the small songsters to be once more ready to nurse and feed his greedy young ones. He is also supposed to possess the gift of prophecy. He not only informs those who will listen to him how many years they have yet to live, but also whispers to curious maidens how long they will remain unmarried. But the Cuckoo is a rogue, and deceives his listeners so often that at last they no longer believe in his prophecies. If the Cuckoo is heard after St. John's-day it is said there will be a bad year, but it is supposed he brings good luck to those who hear him for the first time, with money in their pockets.

Whilst we are thus engaged in listening to this varied concert, we are suddenly startled by a loud knocking; instinctively we look round, and perceive a Spotted Woodpecker (*Buntspecht*) sitting on a dry branch, and hammering it with his beak. The reason of this bird's appearance, neither ornithologists nor foresters have yet discovered.

Thus joy and gladness, peace and harmony, seem to meet us at every turn; but alas! not so in reality. "Struggle for existence," is the primary motto of Nature, and strife and destruction follow as necessary consequences. The birds of prey have returned from their winter-quarters in far-off Africa, and are beginning to disturb the peaceful life of the inhabitants of wood, meadow, and water. There, circling in the blue ether,

soars the Osprey (*Fischadler*), the enemy of all fresh-water fish; ever higher and higher he rises, the white feathers of the under parts shining brightly in the clear sunlight. Now he darts forward like a Gull, suddenly turns over, and then descends with quieter flight. Poised for a minute above the water he spies his prey below him, and, swift as an arrow, drops into the water, which almost closes over him; then, shaking the spray from his feathers, he rises with a struggling fish in his feet, and flies off with it. The eyrie is as remarkable as the owner of it. Whilst other birds take pains to conceal their nests amongst thick branches and foliage, the Osprey makes his home in the most exposed situation he can find, choosing the most lofty, and, if possible, the driest point, of the highest tree in the neighbourhood; so that the eyrie, overlooking all, is visible from afar. The dry twigs and branches, of which the nest (from three to five feet high) is built, are bound closely together with mud and earth.

A sharp cry now announces that another Eagle is soaring above us, the shy Spotted Eagle, *Aquila nœvia* (*Schreiadler*), who circles round and round while keeping a sharp look-out below for food. Suddenly every bird becomes silent, and slips away into the bushes, or crouches on the ground, as a Peregrine Falcon (*Wanderfalke*) dashes by—the terror of all birds from Duck and Plover to the smallest of the feathered tribe.

A timid Buzzard, which, through hunger, has been trying to catch mice in the field, hastens back, with heavy wings, to the forest, pursued by importunate Crows (*Krähen*), and, screaming, seeks shelter among the trees.

Our way leads us past the eyrie of another feathered robber. By knocking hard on the tree, we disturb a brooding Goshawk (*Hühnerhabichte*), whose mate is paying a visit to a neighbouring farmyard in search of his daily tribute of hens and pigeons. With the greatest dexterity and courage he pursues his prey, and seldom misses his stoop; in his blind haste he even follows his victim into houses. I once saw a Goshawk thus entrap himself in a pigeon-house while in pursuit of a pigeon. The female of this species, like that of all other birds of prey, surpasses the male in size and strength, as well as in cruelty and recklessness; cases have been known of a female Goshawk killing her mate and young ones.

Farther on, in a high beech-tree, is a broad flat nest, which, by the fluttering rags we recognise as that of the Kite (*Königsgabelweihe*), and, indeed, a couple of these scavengers are now approaching, carrying rags, with which to line their nest. More of a thief than a robber, the Kite is little feared by other birds; and in the dry branches of an oak-tree close by we hear a Wood Pigeon (*Holztaube*) cooing softly to his mate, whose long absence has made her anxious; while "Master Carpenter" (Woodpecker) is busy in the same tree building for himself and his family. The same duties are being performed in a very artistic manner by the kindred families of Finches (*Finken*) and Titmice (*Meisen*). A Great Titmouse (*Kohlmeise*) already sits assiduously on twelve eggs; one can hardly comprehend how a pair of such small birds are afterwards able to feed so many hungry bills.

From a neighbouring brook a little party of Green Sandpipers (*Schwalbenschneppen*) announce their arrival with sharp notes. Quick as lightning they circle through the trees, searching for the last year's nests of Thrushes (*Drosseln*), and Jays (*Heher*), as a foundation for their own.

Storks, both black and white, and all the Heron family (*Reiher*), have arrived, and with renewed strength recommence their struggle with every living thing that they can subdue. Screened by the trees we quietly watch a couple of Cranes (*Kranich*). With half-open wings, and curious springs and turns, the male bird dances round his mate, calling tenderly to her the while.

The marsh leads into a large meadow, which in turn stretches down to a lake. Scarcely have we entered the marsh when a watchful Plover rises from the grass and warns the sitting birds of the approach of danger. The hen Plover (*Kiebitz*) runs quickly through the grass, then rising at some distance endeavours with her mate to allure the intruder from the neighbourhood of the nest by anxious cries and odd manœuvres; now they dart towards us as if they were going to attack us with their beaks, or tumble sideways as if with broken wing; then they run on some distance, and rise again to recommence their play until we have safely passed their nest. From this curious behaviour those who look for Plover's eggs can tell with exactitude where the nests are, and whether they contain newly-laid eggs or young birds. Not less loudly than the cry of the Plover sounds the clear whistling

of the Curlew (*Brachvogel*), whose nest is also somewhere in the marsh. Crows (*Krahen*) are swarming everywhere, pursued by the pair of Curlews with sharp bills and anxious whistling. There is a perpetual animosity between these birds, for the Crows have a *penchant* for the savoury eggs of the Curlew, and watch every opportunity to steal and eat them. Besides these, numerous small Dunlins? (*Strandläufer*) enliven the marsh; and from the grass the note of the Common Sandpiper (*Rothscheckel*) and the monotonous cry of the Corncrake or Landrail (*Wiesenknarrer*, *Wachtelkönig*) greet the ear.

A loud humming sound makes us look up, where a Snipe (*Bekassin*) is flying here and there with amusing playfulness, making that curious noise in descending which has suggested the name of "Sky-goat" (*Himmelsziege*). At a short distance from us are several curious-looking birds, each one differently coloured, but all with a high long-feathered ruffle round the neck, giving them a remarkably quaint appearance. These are Ruffs (*Kampfhähne*, *Burrhähne*), which hold their tournaments here in the pairing season. They fight so vehemently with one another, that we can approach within forty paces without being observed, and can plainly see how they have trodden down the grass on the spot selected for their tournaments. Suddenly they perceive us, and are off. In front of us a little Titlark (*Wiesentieper*) flies twittering from stem to stem in the grass; and a slender Yellow Wagtail (*Bachstelze*), with quick up and down movement of the tail, runs about gravely in front of us. Hundreds of Black-headed Gulls (*Lachmöven*) and Terns (*Seeschwalben*) whirl through the air with their peculiar cry, looking like large snow-flakes in the bright sunshine, an effective contrast to the green marsh in its fresh spring dress. Further away some Hen Harriers (*Wiesenweihen*) appear; and a lovely Hobby (*Baumfalke*), flying towards the forest, stoops on his way at a small screaming bird with graceful dexterity.

In the shallow water, near the shore of the lake, stands a motionless row of larger birds; with one leg drawn up close to the body, the long thin neck bent back, and the strong-pointed beak half hidden in the puffed feathers,—the Heron (*Fischreiher*) stands in philosophical tranquillity and stoical indifference, regardless of the noisy ways of other birds, amongst which the Reed Thrush (*Rohrsperlinge*) takes care to make himself

conspicuous. But such apathy is only feigned. The cruel greedy eye is immovably fixed on the surface of the water: presently an unsuspecting fish approaches; like lightning the long neck is raised, one sharp sure thrust of the powerful beak in the water, and the fish is caught. As if in sport it is then tossed in the air, only to fall head foremost into the insatiable maw of its captor. On the smooth surface of the lake swims the Common Coot (*Blässhuhn*), and the Crested Grebe (*Haubentaucher*) has also its nest here. Although not visible to our eyes, they give notice of their presence by monotonous hoarse cries. Between the water-plants green-legged Spotted Crakes (*Rohrhühner*) are bustling about; and further on there are some Ducks (*Enten*) on the water, amongst which we recognise the Common Duck and Mallard (*Stockente*), the smaller Teal (*Kräkente*), and the Pintail (*Schiessente*) with their slender necks. Slowly over the lake, without any perceptible motion of his wings, soars a Black Kite (*Schwarzer milan*), watching eagerly for prey. The Ducks care little for him, and continue to float carelessly on the water; but suddenly a Peregrine Falcon (*Wanderfalke*) appears, also looking for prey. A panic seizes the whole feathered flock; even the impudent Crows (*Krähe*) fly away terror-stricken; the Ducks swim as low as possible in the water, or if on shore, crouch upon the ground, for only thus are they safe from the dreaded Falcon; and woe to the bird who, trusting to the swiftness of his wings for safety, is overtaken and struck down.

On the other side of the lake a deep ditch winds through the fir wood, and extends as far as the coast, in the steep banks of which we may find the nesting-holes of the bright blue-backed Kingfisher (*Eisvögel*). Miners as well as fishermen, they have dug out a horizontal tunnel, at the bottom of which the young ones are couched upon a layer of fish-bones.

Continuing our walk through the forest we reach the broad shining sea. Birds are scarce here at present. A few Black-headed and Common Gulls (*Lachmöven* and *Sturmöven*) are looking for food on the beach; and here and there a Tern (*Seeschwalben*), wiser than the Plover (*Kiebitze*), has not yet begun nidification, because, according to law (in Pomerania), all eggs laid before the 1st of May can be taken to supply the kitchens of those who are partial to Plover's eggs and Gull's eggs. Further on some Ducks are on the moor; Mallards (*Stockenten*), whose

iridescent green heads shine like emeralds in the evening sun; many-coloured Sheldrakes (*Brandenten*) perpetually moving; Common Teal (*Krükenten*); Shovellers (*Löffelenten*), whose beauty is spoilt by their unshapely bill; and still further on some Red-breasted Mergansers (*Sägetaucher*). All the numerous winter visitors to our sea-shore have returned to the undisturbed breeding-places of their northern home, to visit us next autumn in increased numbers.

In the meantime the sun has sunk below the horizon into the sea, dyeing the firmament and water with brilliant purple tints as a last farewell. Twilight falls upon the earth, and warns us to turn our steps homeward. We wend our way back through the old forest, through which the dark shadows are already creeping. Tired and silent we wander on, now and then roused from our reverie by stumbling over some projecting root of a tree. Every object melted into vague indistinct outlines; and the profound silence of the forest—interrupted only by the crackling of the dry twigs on which we tread, or the movement of the branches lightly stirred by the wind, and the croaking of the frogs heard afar off through the lovely May night—excites the fancy, and makes the mind susceptible to the influence of things apparently supernatural, whose origin cannot be accounted for. Suddenly the stillness of the wood is broken by sounds which fall on the ear like ghostly voices from the air and branches above us: “komm mit, komm mit” (come with us), these invisible spirits of the wood seem mockingly to say. While still listening in wonderment, another curious noise comes from a tree near us; a loud “whirr,” as if a spinning-wheel was being turned quickly; and as soon as it ceases on one side of us, it is heard again on the other. Have we lost our way in the domains of some angry forest fairy, who has banished a party of spinning maidens to the place to disturb the silence of the night with their humming?

To our relief, we learn from wiser mouths that the first voice we heard was that of the Little Owl (*Steinkauze*), whose cry is interpreted by the common people as an announcement of death; and it in consequence receives the name of the “Death-bird” (*Todtenvogel*). The whirring noise we heard is made by the Nightjar, or Goat-sucker (*Nachtschwalbe*), which acts as the night-police of the wood, keeping a sharp look-out for insects which prowl about in the dark, and punishing them summarily.

But these sounds appear to be only the introduction of the usual nightly concert. A Long-eared Owl (*Waldshreule*) begins *piano*, with a long protracted scream, which sinks into hollow deep notes; a Tawny Owl (*Waldkauz*) joins in *crescendo*, with disagreeable hoarse tones; and then all the Long-eared and Tawny Owls of the neighbourhood fall in one after another until they reach a protracted *fortissimo*; a loud frightfully discordant chorus, with a burst of hideous laughter as a *finale*. This unearthly music does not drown the hollow disagreeable hooting of the great Eagle Owl (*Uhu*), which approaches nearer and nearer, and is not unlike the baying and yelping of a hound; now it changes to jeering laughter, shouts of joy, sharp screams, or hollow deep cries, echoing the bird's own name (*Uhu*), accompanied by quick movements and snapping of its beak. This is the terrible concert which Owls and Goatsuckers keep up during the night; and is well calculated to create alarm in anxious and superstitious minds, inducing them to ascribe these noises to supernatural powers; so that the story of the wild huntsman and other fairy tales seem almost entitled to be regarded as true. But having listened long enough to this discordant music, we hasten on our way, rejoiced to think that, hungry and tired as we are, we shall soon reach home.

ON SOME VARIATIONS IN *HELIX ARBUSTORUM*, LINN.

By B. B. WOODWARD, F.G.S., F.R.M.S.

SOME months ago my attention was called to a paragraph, by Mr. J. W. Taylor, in the 'Scottish Naturalist,' recording the discovery of *Helix arbustorum* var. *Baylei*, Lecoq., near Loch Brora, in Scotland. I at once wrote to Mr. W. Baillie, of Brora, who was said to have found it, and he very kindly placed at my disposal all his duplicate specimens of *H. arbustorum* from that northern neighbourhood.

The cursory examination made at the time of its arrival showed that the little collection afforded some very interesting peculiarities regarding the variations in colour, markings, &c., to which this species is liable; but until quite lately no opportunity occurred for working them out.

The amount of variation exhibited in specimens coming from the same spot is very striking, and led to my enquiring into the value of the named varieties (so-called) of this species. The conclusion was irresistible that, however useful such distinctions may have been in the past, they are totally inadequate to present requirements, not to say unscientific, whilst their retention is even mischievous in encouraging too close an insistence on trivial and valueless minutiae to the overlooking of the broader generalisations that underlie them; and this is true of other species equally with the one at present under consideration.

In the first place, of course, I sought for the var. *Baylei*, Lecoq., which was said to be new to Britain. The description given by Moquin Tandon* as follows:—"v. *Baylei* (Lecoq. ! in litt.). Coq. plus petite, plus conoïde, extrêmement mince, fort transparente, d'un jaune verdâtre clair, unicolore."

What may be implied by the ! after Lecoque's name I cannot ascertain; but it is evident that he never published a description of it, and it is at best a MS. name.

Many of the immature specimens in the collection answer very well to this description. They are perfectly transparent, extremely thin, and destitute of any markings whatsoever (reminding one strongly in these respects of *Vitrina pellucida*, Müll.† (a likeness enforced by the presence of a dent in one specimen, showing that the shell was quite soft when the animal was extracted); the colour, too, is greenish yellow. These specimens, however, are matched in every respect, save that of colour, by other examples, also immature, from the same locality, the tint in these cases being a pale red-brown. Moreover, amongst the adult specimens, both fulvous and rufous, it is by no means uncommon to find examples in which the upper $3\frac{1}{2}$, or even 4, whorls are manifestly free from markings of any kind, thus showing that in their youth they, too, resembled the specimens just described, till at a given period of their growth, and immediately after an evident pause in the same, they acquired (sometimes quite suddenly) the full markings of the typical form.

* Hist. Nat. Moll. France, ii. p. 124.

† Mr. J. W. Taylor also notes this similarity of texture (Journ. Conchol iii. p. 253.

"The young shells," says Gray, when speaking of this species,* "have a thin lip, with a slight white internal rib," a fact which is apparently unnoted by any other observer, save Mr. J. W. Taylor,† who reproduces Gray's words, though by some oversight, unusual with him, he has omitted to name his authority. This white internal rib is not, however, of universal occurrence in the immature specimens, as evinced by the examples before me, and seemingly it is coincident with a check in the growth of the mollusk; but when once formed it is permanent, and adult specimens will frequently exhibit one or two such internal ribs, marking stages of growth, the only external indication of their presence being a lighter band of colour across the whorl, interrupting the markings when such are present, and coinciding with the lines of growth. Strange to say that, common as this phenomenon is in the adult forms, and almost typical of the species, it does not appear as yet to have been recorded. In *H. rufescens*, Penn., *H. Pisana*, Müll., and *H. virgata*, Montf., the same thing occurs, and, as far as I can judge from a cursory examination, all the *Helices*, which in the adult stage have a thickening or rib within the usually unreflected lip, are liable to form two or even three such ribs in the course of their growth. In those *Helices*, however, which, like *H. aspersa*, have a more or less reflected lip when adult, the pauses in growth are indicated only by an interruption in the markings on the exterior of the shell.

The amount of variation in the ground colour of the shell shown in these Scotch specimens, even in those from one spot, is somewhat remarkable. Out of twenty-four specimens collected at Rock, near Loch Brora, six adult and ten young ones are of the red-brown or rufous type; one adult is nearer the normal colour; one adult and five young belong to the yellow or fulvous type; and one adult individual is olive-green speckled with yellow, the band corresponding in colour with the ground tint, whilst the interior is purplish brown. One of those belonging to the fulvous group appears to the naked eye to be of a uniform yellowish tinge, the spiral band being pale brown; when

* Turton's Manual of Land and Fresh Water Shells of the Brit. Is., ed. Gray, 1840, p. 138.

† Journ. Conchol. iii. p. 244.

examined with a lens, however, the seemingly uniform tint resolves itself, in the last half whorl, into a series of excessively fine, parallel, wavy, spiral bands alternately opaque and clear. To take another example, out of twenty-seven specimens from Golspie Burn (just south of Brora), two adult and two young individuals belong to the rufous type, one of them being the darkest coffee-brown coloured example I have seen; two adult and eight immature specimens are near the normal hue; three adult and ten young belong to the fulvous group, of which some have a decided greenish tinge, whilst one is straw-coloured.

In size they also vary greatly, as the following figures giving the dimensions in millimetres of some of the adult specimens will show. To save repetition the numbers are arranged so as to give, (1) altitude, (2) maximum and minimum diameter, (3) height and width of the aperture, (4) the number of whorls; then follows the type of colour, and lastly the locality:—

20.	22 × 19.	11 × 11.	6.	Olive-green.	Rock.
18.	20 × 19.	11 × 11.	5½.	Rufous.	„
17.	20 × 17.	11 × 10.	5½.	„	„
17.	19 × 17.	11 × 10.	5½.	Normal.	„
16.	19 × 17.	10 × 9.	5½.	Rufous.	Golspie Burn.
17.	20 × 17.	10 × 5.	5½.	Normal.	„
16.	19 × 17.	10 × 10.	5½.	„	„
19.	22 × 19.	12 × 11.	5½.	Fulvous.	„
17.	19 × 17.	10 × 10.	5½.	„	„
20.	22 × 20.	12 × 12.	5½.	Rufous.	Loch Brora.
16.	20 × 17.	10 × 11.	5¼.	„	„
19.	21 × 19.	11 × 12.	5½.	Normal.	„
15.	18 × 15.	10 × 10.	4¾.	„	„
18.	20 × 17.	11 × 11.	5½.	Fulvous.	„
14.	19 × 17.	10 × 10.	4½.	Normal.	Tongue.

The last example quoted is a most remarkable one; the spire is not more elevated than in *H. cantiana*, Montag., and has a rather knocked-about appearance, as though it had had a hard time of it, which is not unlikely, seeing that it was taken by Mr. Baillie in the extreme north of Scotland at Tongue, near the sea, and, I am informed, associated with *H. ericetorum*, Lister, though to this companionship its depressed state is not

attributed.* The severity of the climate in that northern latitude and the hard living must, doubtless, be held responsible for its distorted aspect, and to the same causes, acting possibly a little less harshly, but still rendering the struggle for existence a severe one, must be attributed the abundant variation evident throughout the collection.

To attempt to relegate the variations just chronicled to any of the two and twenty named varieties (so-called), which have been established for this species,† though quite in harmony with the views of a certain school of conchologists in this country and abroad, would be, to my thinking, not only absurd but impossible. For, supposing we do agree that the fulvous specimens, transparent through poverty of lime, and devoid of the customary markings, are the "var. *Baylei*, Lecoq."; and that the rufous examples, which for the same causes in all save colour are identical with them, are to be estranged from them, and concealed under another varietal name, var. *fusca*, Férus: granted all this, what is to be done with the adult individuals, both fulvous and rufous, that with middle age changed their condition of spotless and transparent youth for the blotched markings and opaque state of the normal shell? Are two brand-new varietal names to be invented for their special benefit? Is it not rather time that these useless distinctions were consigned to the oblivion of the (unscientific) past, more especially as so many of them were founded at a time when fixity of species was a current creed, and varietal names were established on such insufficient grounds as mere differences of colour or divergence in size from a purely arbitrary but supposedly fixed type?

Surely the state of our knowledge is sufficiently advanced to allow of certain variations being admitted as normal, so to speak, to every species, *e.g.*, unusually fine specimens,‡ dwarfed forms, reversed examples, scalariform individuals, and albinos,

* A yet more depressed form from Twickenham is also in my possession. The dimensions are:—13, 20 × 17, 10 × 12, 4 $\frac{3}{4}$, colouring normal. It is, of course, a distorted specimen.

† For a good summary of these see Mr. J. W. Taylor's paper, Journ. Conchol. iii. pp. 246—51.

‡ Generally called "var. *major*": fancy christening the late lamented Jumbo *Elephas africanus* var. *major*!

without its being necessary to distinguish each one by a different varietal or "monstral" name.* It should be enough to record their existence, and that of such variations as are more or less specific, *i. e.*, those of colour, markings, &c. In short, I would advocate the adoption of the method followed by Gray, whose description† of the variations of this species when emended and brought up to date would read as follows:—

The shell of *Helix arbustorum* varies—1. In colour: (a) The ground tint ranges from pale yellowish white through a brownish tawny to red-brown and almost brown-black; whilst a greenish tinge at times prevails over these. More rarely it is olive-green. One specimen has been recorded of a violet colour. Albinism is not uncommon. (b) The frecklings are sometimes partially, sometimes altogether, white.

2. In markings: Sometimes the spiral band, at others the frecklings, and sometimes both, are wanting. The band varies also in strength of colour and a little in width.

3. In thickness: Some specimens being exceptionally solid; whilst examples from elevated situations, where lime is scarce, are exceedingly thin and transparent. (These "starved" forms are frequently devoid of all markings.)

4. In size: According, as the surroundings of its locality are exceptionally favourable, or the reverse, to its development.

5. In shape: According as the whorls are a little more or a little less tightly coiled.

6. Variations due to combinations of the foregoing.

It is sometimes distorted—(1), the spire is more or less elevated or depressed; (2), reversed examples are met with at times; and (3), very rarely it is scalariform (*i. e.*, the spire is elevated and the whorls separated).

Such a summary, when properly annotated and supplemented by more detailed mention of remarkable examples, especially those forms which have at any time been described and regarded as distinct species, would, I contend, be amply sufficient for all purposes, save that perhaps of the amateur conchologist, who wants to expand the catalogue of a scanty collection into a formidable list of names.

* I am glad to see that this is in part admitted by Mr. T. D. A. Cockerell, even whilst coining fresh ones (see *Sci. Goss.* 1885, pp. 179—80).

† *Op. cit.*, p. 138.

In conclusion, I should like to point out that some of the colour modifications, which have been already alluded to as more or less specific in contradistinction to such variations as are universal, seem to be more widely diffused than has hitherto been generally recognised. These colours, of course, are due to the organic pigments in the periostracum and shell, deposited from the pigment-glands in the mantle of the animal, and consequently their modifications are dependent on certain physiological changes in the latter, the cause and nature of which are as yet unknown. Certain it is, however, that many other mollusks besides the subject of this note are liable to the same or closely similar variations in coloration. Thus *Helix aspersa* varies from a pale yellow through tawny to dark red-brown and almost brown-black. *Helix nemoralis* and *H. hortensis*, as every one knows, are both yellow and pink and olive-brown, whilst more rarely lilac examples are met with. *H. (Nanina) citrina*, Linn., has also a range of colour from yellow to red-brown, and slate-coloured examples are known. Amongst the gaudy-coloured *Helices* from the Philippines, *H. mirabilis*, Sow., varies from pale to dark yellow-brown; and *H. polychroa*, Sow., from a pale brown tinged with streaks of green, to green and to dark coffee-brown. Many other instances might be adduced, but enough has, I think, been said to show there exists some general law at present imperfectly, if at all understood, which it would be well to bear in mind when treating of colour variations; and this it was which prompted me in the foregoing note to confine myself to general terms when dealing with the colour modifications of *H. arbustorum*, and to speak of the "fulvous type" and the "rufous type."

NOTES ON THE VERTEBRATE ANIMALS OF LEICESTERSHIRE.

BY MONTAGU BROWNE, F.Z.S.
Curator, Town Museum, Leicester.

(Continued from p. 338).

Sylvia cinerea, Bechstein. Whitethroat. "Peggy."—Summer migrant, arriving in April and leaving in September. Generally distributed, and breeding. Harley says, "The young, before they are fully fledged, not unfrequently leave the nest, and creep

about the bushes and thickets in which they have been fostered, but especially so on being disturbed." He also states that this species is double-brooded, which I have no doubt is the case, as the Leicester Museum possesses a nest and young taken by me in the month of August, 1883, at Aylestone.

Sylvia curruca, Naum. Lesser Whitethroat. — A summer migrant, but not quite so common as the last-named. Harley says it is very local. I have not yet received the nest, and have but few notes of its breeding from Mr. Davenport, who considers it, as I do, less common or more local than *S. cinerea*. He gives the dates of the first eggs taken by him as follows:—In 1882, May 8th; 1883, May 30th; 1884, May 17th; and in 1885, May 12th. Mr. Macaulay states that this species arrives earlier than the preceding one.

Sylvia atricapilla, Naum. Blackcap. — Summer migrant. Generally distributed, breeding, but not so common as the last named species. Harley writes:—"It nestles in thick bushes and shrubs, but I have met with its nest on the ground among tall matted grass, composed mainly of cleavers, soft grass, and other vegetable substances, matted and woven together with cobweb. It is lined with hair. The nest, by a careless observer, may be mistaken very easily for that of the Whitethroat." Davenport has found the nest and eggs from 1882 to 1885 between May 8th and 18th.

Sylvia hortensis, Bechstein. Garden Warbler. — Summer migrant. Generally distributed; breeding and more common than the Blackcap. Harley says:—"Nidification commences in May, if the spring be favourable and mild. The nest is rather slovenly and loosely put together, which, when completed, may easily be mistaken for that of the Whitethroat. The fabric is slenderly built, and composed of goose-grass mainly, lined with horse-hair. It is placed generally among nettles, long grass, and tall plants; but more frequently we have met with it fixed to the dwarfed branches of the sloe, or rough twigs of the wild raspberry." The eggs are rather difficult to distinguish from those of the preceding species.

Melizophilus undatus, Newton. Dartford Warbler.—This bird does not occur in the county, and is only now mentioned because it has by error been included in local lists on the authority of Yarrell and Morris, as having occurred at "Melton Mowbray, in

Leicestershire." The individual bird mentioned by Yarrell came from Cambridgeshire.

Regulus cristatus, Koch. Goldcrest.—Resident; generally distributed; breeding. The nest is sometimes suspended from a branch of the spruce fir and other coniferous trees; but not invariably so, for Harley met with a nest fixed laterally on a branch of the yew, after the manner of a Chaffinch. A nest containing eggs was built on the branch of a spruce-fir in the garden of Mr. C. S. Robinson at Eastfield, Stoneygate, Leicester. Mr. Davenport has found the nest and eggs in 1882 on April 16th; 1883, May 3rd; 1884, May 1st. Mr. Ingram says, "Often found in our large yew trees."

Regulus ignicapillus, Naum. Firecrest.—Mr. Macaulay states ('Midland Naturalist,' 1882, p. 63) that a pair of these birds were seen at Skeffington in 1880. I doubt whether this species could be distinguished from the preceding if only seen on the wing.

Phylloscopus rufus (Bechstein). Chiffchaff.—Summer migrant. Generally distributed, common, and breeding. It arrives about April 7th, and "two broods are reared during the season. The first has been seen abroad on the wing early in June; the second in August." The earliest record I have of its arrival is March 18th; the average date would be March 25th. Said by Macaulay (at pp. 85-6 of 'Midland Naturalist,' April, 1883) to have been seen at Langton on February 21st, 1882, and also at Gumley, Nov. 11th, 1882. The winter of 1881-2 was the mildest ever known in the Midlands. I heard a Chiffchaff several times in a small spinney at Aylestone, in 1883, as late as September 21st.

Phylloscopus trochilus, Newton. Willow Warbler.—Summer migrant; generally distributed and breeding. I have received nests and eggs of this bird from Aylestone, Belvoir, Bradgate, Knighton, and other places, much more frequently than those of the Chiffchaff. Apparently it is equally common with that bird, and its nest is just as skilfully concealed. Davenport writes:—"In June, 1882, I found a nest of this species in the plantation hedge at Skeffington Rectory, quite five feet from the ground; it contained eggs."

Phylloscopus sibilatrix, Newton. Wood Warbler.—Summer migrant; sparingly distributed. It makes an oval nest on the ground constructed of dry grass, decayed leaves, sprigs of moss, internally lined with finer bents, fibrous grass, and a few hairs.

Mr. Macaulay writes:—"Rare. In 1879 it was seen in Gumley Wood by the Rev. A. Matthews, whose intimate acquaintance with birds, both in this county, and for many years previously in Oxfordshire, is a sufficient guarantee for the correctness of the note."

Acrocephalus streperus (Vieillot). Reed Warbler.—Summer migrant. Locally distributed, and breeding in some situations. Harley met with a nest fixed to three stalks of the nettle, some four feet from the ground. It was composed of fibrous roots, fine grass, and cleavers (*Galium aparine*, L.). This bird abounds on the banks of the Soar, haunting most osier-beds and willow-holts skirting that dull running stream. It is "met with also in the reed-beds on the banks of Groby Pool, at Dishley Reservoir, at Garendon, and elsewhere in the county." Macaulay, though living near Saddington Reservoir (where it undoubtedly breeds in small numbers every year) had no knowledge of its existence, save on the authority of the Rev. A. Matthews (who said that it occurred in the northern division of the county), until I came to Leicester, when in September, 1880, I took a few short walks for purposes of observation, and during one of them came to a spot close to Leicester, in which one would expect to find nesting the Sedge and possibly the Reed Warbler, and where the following May and June I found both. In fact, so abundant were both species that, had we been so minded, we might have taken twenty or more nests. This year (1885) I visited the same locality, which (being a reed-bed just under the Castle—actually in Leicester itself) will soon be swept away by projected improvements, and there found the nests and eggs of this bird in numbers, several being secured for the Museum. Most of them were difficult of approach, but one was built in an elder-bush. Another which I chanced on at Aylestone, containing eggs, was built—like a Whitethroat's—in a blackthorn bush in a hedge fringing the river; another one, also at Aylestone, was built in a privet-bush in a garden close to the water. In addition to the localities mentioned, I find it nests also at Bosworth and at Thornton. This bird and the Sedge Warbler, singing at all hours of the night, are often mistaken for the Nightingale.

Acrocephalus aquaticus (Bechstein). Aquatic Warbler.—This bird is noted as occurring in Leicestershire on the authority of Mr. Harting, who received a single specimen from the neigh-

bourhood of Loughborough during the summer of 1864, as recorded at length in 'The Ibis' for 1867 (p. 469), and also in 'Our Summer Migrants' (p. 91).

Acrocephalus phragmitis (Bechstein). Sedge Warbler.—Summer migrant. Generally distributed, and breeding. I have found it, at the Castle reed-bed, built both in reeds and in forks of osiers, and also, as in July, 1885, in the middle of a small whitethorn-bush by a ditch at Aylestone. This nest was extremely well constructed, and lined with the seed-tufts of the reed. Davenport says:—"In June, 1883, I found a nest of this species built at the top of a "bullfinch hedge," quite ten feet from the ground, near Shangton Holt. It contained four eggs."

Locustella naevia (Boddaert). Grasshopper Warbler.—Summer migrant. Sparingly distributed, and breeding. Macaulay records that a pair built under a bush in the garden at Gumley Rectory, 1876, and when the young were hatched a good view was obtained, by him, of the old bird while engaged in feeding them. Mr. Davenport found a nest in May, 1879, in Skeffington Wood, with five eggs; another in May, 1883, in a spinney near Ashlands, containing six eggs, and a third on May 21st, 1884. I have not met with this bird around Leicester, though Mr. Macaulay notes it near Kibworth every year.

Accentor modularis, Linn. Hedgesparrow.—Resident; generally distributed, and breeding. Harley remarks that it is liable to a tubercular disease, and has seen the eyelids, base of the bill, and a great part of the occiput covered with small tubercles and warts; a peculiarity which I have myself noticed.

Cinclus aquaticus, Bechstein. Dipper.—Resident, but rare. It occurred on the brook which flows down from the forest of Charnwood by way of Gracedieu Priory, and was observed by Harley on the brook which rises near Copt Oak and flows onward by the villages of Belton and Sheepshed, and thence into the Soar. Adams shot an example (in Harley's time) on the stream which passes through Bradgate Park. Another was shot some years ago out of a brook near Noseley, and is now in Sir A. Hazelrigge's collection. I purchased for the Leicester Museum a specimen said to have been shot near Syston or Queniborough three years ago, and the keeper of Thornton Reservoir told me that he had procured specimens there more than once during the past few years.

Fam. PANURIDÆ.

Panurus biarmicus, Gray. Bearded Tit ("Reedling").—Formerly occurring; rare. Being at Elkington's, a taxidermist, of Churchgate, Leicester, on the 3rd October, I found a pair of these birds, which he assured me were shot by Greer, of Aylestone Park, some ten or twelve years ago, at the "backwater," Bede House Meadows, Leicester. Mentioning these to Turner, of Harcourt Street, another taxidermist, he said it was no doubt the case, as he had received several some eight or nine years ago, shot at the reed-beds under the Castle, Leicester, and that he always imagined they bred there.

Fam. PARIDÆ.

Acredula caudata rosea (Blyth). British Long-tailed Titmouse.—Resident, and generally diffused, especially in thickly-wooded tracts, as, for example, the vicinity of Newtown Linford, Groby, and Ansty. I have received the nest from Belvoir, Braunstone, and Bradgate.

Parus major, Linn. Great Titmouse.—Resident. Generally distributed, and breeding. In June, 1883, I found in an apple tree at Aylestone Hall a nest of this species in juxtaposition with a nest of the Blue Tit, both containing young.

Parus ater, Linn. Coal Titmouse.—Resident. Generally distributed, and commoner than the following species.

Parus palustris, Linn. Marsh Titmouse.—Resident, but sparingly distributed. It is partial to the willow and alder, in the decayed boles and branches of which it nests. It also affects the Scotch fir, and other coniferous trees when decayed. I myself have no record of its nesting in the county, nor does Davenport appear to have as yet discovered it.

Parus cæruleus, Linn. Blue Titmouse.—Resident, and generally distributed. On June 5th, 1883, Davenport found a nest of the Blue Titmouse built inside an old nest of the Song Thrush in a thorn-bush at Loddington Redditch, containing nine eggs, on which the old bird was sitting hard. The Leicester Museum possesses a group of nine young ones and the mother bird, taken out of a hole in an apple tree at Aylestone in 1883. Mr. Ingram showed me a nest built in the mouth of a faun's head which formed a decoration on the base of an urn in the gardens at

Belvoir Castle. Another nest was formed in an ancient howitzer in the same grounds.

Fam. SITTIDÆ.

Sitta cæsia, Wolf. Nuthatch.—Resident, locally distributed, and breeding; occurring, however, in well wooded districts, as, for example, at Garendon, Bradgate, Bosworth, Donington, and Croxton. I have found it as near Leicester as Knighton, and at Wistow and Kibworth it is fairly common.

Fam. TROGLODYTIDÆ.

Troglodytes parvulus, Koch. Wren.—Resident, and generally distributed. Building in all situations; holes in walls, in ivy, in banks, and the Leicester Museum possesses one built in an old hat found in a garden on the Hinckley Road in May, 1884.

Fam. MOTACILLIDÆ.

Motacilla alba, Linn. White Wagtail.—No authentic note of the occurrence of this species in the county is extant, although Macaulay states ('Midland Naturalist,' 1881, p. 256) that "it comes and departs with *Motacilla raii*, and has been more abundant of late years." I wish now to correct the error made by him of confusing this bird with the Pied Wagtail in spring plumage. Mr. Harting, at p. 110 of 'Our Summer Migrants,' describes in a few words the specific differences between the common form and the rarer *M. alba*, a species common enough on the Continent, and which I have repeatedly observed and shot in Spain and Greece.

Motacilla lugubris, Temm. Pied Wagtail. — Resident, and commonly distributed. Its nest is commonly found on a stump of osier, and not unfrequently on the ground below at its base; also in piles of wood, stacks of coal, and large heaps of slate and stones. A pair of these birds nested this year in a stack of coal on Mr. Gulson's wharf, Mill Lane, Leicester, and made determined attacks on the family cat, which was sometimes anxious to inspect the brood.

Motacilla melanope, Pallas. Grey Wagtail ("Winter Wagtail.") —A winter migrant, sparingly distributed, seldom making its appearance much before October. The Leicester Museum possesses one shot by Dr. W. M. Squires at Aylestone. Mr. G. H.

Storer procured one at Hinckley Road, September 22nd, 1884 and I shot one at Knighton, November 22nd, 1884. In the winter of 1884-5 it was comparatively abundant. Mr. W. A. Evans shot a fine male on October 7th, 1885, close to the "North End," Leicester.

Motacilla raii, Bonap. Ray's Wagtail. — Summer migrant, commonly distributed and breeding. Common in the meadows of the Soar around Leicester. The nest, placed on the ground among grass, young corn, and tall plants, is composed of dry bents, fibrous roots, and small twigs, mixed with green moss, and lined with hair.

Anthus pratensis, Linn. Meadow Pipit. — Resident, and commonly distributed, and breeding.

Anthus trivialis, Linn. Tree Pipit. — Summer migrant, Generally distributed, and breeding.

(To be continued.)

NOTES ON NEW ZEALAND BIRDS.

BY THOMAS H. POTTS, F.L.S.

Falco novæ-zealandiæ, Gmelin. Quail-hawk. — Eggs taken from an eyrie near the Teremakau River are ovoid in shape, of a rich yellowish red, suffused profusely with reddish brown. In one specimen the upper portion of the surface is blotched with dark reddish brown; a second specimen has the entire surface generally mottled over with irregular marks of dark reddish brown.

Circus assimilis, Jardine and Selby. Harrier. — In November, 1884, in one of the large swamps in the Hind District, on the Canterbury Plains, a nest of this Harrier, built on a large tuft of coarse growing rushes (*Juncus*), was knocked over by a "mob" of cattle. The nest, being set up again and the eggs put back, the hawk returned and resumed incubation. The nest contained five eggs; another nest in the Hororatu District also contained five eggs.

Prothemadera novæ-zealandiæ, Gmelin. Tui or Parson-bird. — In January last I saw two nests with five eggs each, built on tall manukatras (*Leptospermum ericoides*).

Anthornis melanura, Sparrman. Bell-bird, Korimako.—Last season I saw two instances of the nest of this bird on foreign trees, one in a plum (*Prunus*), the second in a thorn (*Cratægus*).

Anthornis melanocephala, Gray. Chatham Island Bell-bird.—This bird is deserting the neighbourhood of the settlements and homesteads, and retiring to the southern part of the island.

Orthonyx ochrocephala, Gmelin. Canary, Popokatea.—For several weeks past (July, 1885) a few of these birds have appeared in the garden and shrubberies.

Rhipidura fuliginosa, Sparrman. Black Flycatcher or Fantail, Ti-waka-waka.—Remarkably tame and confident. During many weeks of autumn one of these birds entered the rooms freely, and often alighted on persons, or on a newspaper whilst being read, sometimes perching on a low fender in front of the fire. It would also perch on persons out of doors in a most confident manner.

Platycercus novæ-zealandiæ, Sparrman; *P. auriceps*, Kuhl.—Appeared in great numbers last spring and summer, living on currants, strawberries, cherries, plums, pears, apples, &c.; in the autumn and winter feeding on sowthistle, cocksfoot, acacia seeds, cones of *Cupressus funebris*, *Pinus pinea*, acorns, &c.

Charadrius bicinctus, Jardine and Selby. Dotterel.—Last season bred on farms not far from homesteads in the Westerfield District, Canterbury Plains.

Thinornis novæ-zealandiæ, Gmelin. Shore Plover.—On October 3rd this species was found breeding on a small rocky islet, about five acres in extent; it is one of the Chatham Island group, called the Sisters, or Rangitutahi. This very exposed and unsheltered site apparently is shared only by the huge Albatross (*D. exulans*), and the Giant Petrel (*O. gigantea*), which also breed there, and rest awhile from almost ceaseless wanderings over the surrounding ocean. Exposed to gales that sweep over a vast unbroken expanse of sea, and break against this little speck of rock, the only screen that may shelter the wild home of the Shore Plover is the tussock of wiry grass or saw-edged *Carex*, for no tree is there to lend a friendly shelter. The eggs, three in number, just fit the slight nest of a few grass-leaves twisted into a circular form. They are ovoido-conical, ovoid with the smaller end blunt, or somewhat pyriform, smooth, and somewhat shining. They vary in colour, being (a) pale or warm

stone-colour, freely sprinkled with blackish brown (or almost black) irregular marks, angular lines, or dots; (b) pale greenish white, very much scrubbed over with irregularly-shaped marks and minute dots, which become more conspicuous towards the larger end, round which they form an unevenly-defined zone; (c) stone-colour, more or less covered with irregularly-shaped marks of umber-brown; (d) pale stone-colour, with a faint greenish tint, sparingly sprinkled below the bilge with very small blackish-brown freckles, none of which seem sunk into the surface, the upper portion splashed with bolder marks of umber and deep chestnut-brown; (e) rich warm stone-colour, abundantly covered with blotches of chestnut and umber-brown, interspersed with minute dots, freckles, and fine linear scribbling marks of dark brown. Length, 1 in. $4\frac{1}{2}$ lines; breadth, 1 in.

(Ohinitahi, July 27, 1885).

NOTES ON LAND MOLLUSCA OCCURRING IN THE NEIGHBOURHOOD OF PONTEFRACT.

BY GEORGE ROBERTS.

THE neighbourhood of Pontefract has long been a favourite hunting-ground for conchologists and botanists. The town stands partly upon the outcropping edge of the Magnesian Limestone which runs across Yorkshire, partly upon the Carboniferous Sandstone, and partly upon a bed of sand, the latter being mined and quarried in various places for moulding purposes. The soil is in some places six to nine feet deep, and, on the east side of the town, produces fine crops of liquorice and other vegetables. The visitor on alighting from the railway finds himself surrounded by liquorice grounds, and market gardens filled with cabbages, French beans, peas, and potatoes. Besides the diversity in the strata, in the soil, and in the vegetation, there are many old disused quarries, marl-pits, sand-pits, ivy-covered walls, high grassy banks, and cliffs; hence we find suitable habitats within a small area for a great variety of plants, insects, and mollusks.

—Most of the under-mentioned *Helices*, with varieties, have been collected within the last three years; the others have been noticed in previous years.

I.—TERRESTRIAL MOLLUSCA.

UNIVALVES (*GASTEROPODA*).

Fam. LIMACIDÆ.

Arion ater. The Black Slug.—Abundant.

A. hortensis. The Garden Slug.—Typical form. Monkhill.

Var. *fasciata* (Orange-foot), Monkhill. The young of this species are sometimes white.

Limax agrestis. The Field Slug.—Type, and a yellowish variety on nettles. In August I caught a *Limax agrestis* mounted on the top of a *Sparganium* leaf, coiled round, and feeding on, a young *Succinea putris*.

L. maximus. The Great Slug.—Abundant everywhere.

L. lœvis. The Smooth Slug. Near Ackworth.

Fam. HELICIDÆ.

Zonites cellarius. The Cellar Snail.—Common.

Z. alliarius. The Garlic Snail.—A few specimens on St. Thomas's Hill (the hill on which Thomas Duke of Lancaster was executed in 1322).

Z. nitidulus. The Shining Snail. — A few specimens very glossy, and much like *Z. glaber*, on a bank at St. Thomas's Hill.

Z. purus. The Clear-shelled Snail.—One or two examples with the last-named. Frequent among dead leaves in woods.

Z. crystallinus. The Crystalline Snail.—Common.

Helix aculeata. The Prickly Snail.—Two dead shells with *Z. nitidulus*. Occurs sparingly in various other places.

H. aspersa. The Garden Snail. — Abundant in the hedge-banks, of all sizes and colours. On May 27th, 1885, many were still hybernating in crevices in the rocks, congregated in large clusters one upon another. Gwyn Jeffreys states that *Helix aspersa* is destructive in kitchen gardens, and also feeds on wall-fruit. I have observed its habits for many years, and have never seen it in the act of eating any kind of fruit. I placed a canister full of these snails in a bed of strawberries, but I never once saw any of them touch the fruit, and have seldom observed them eating living garden vegetables. I believe *Limax agrestis* and *L. maximus* are the real delinquents. Although this species is exceedingly abundant in the neighbourhood of Pontefract,—more

abundant than in any other district that I know,—they are not very numerous in gardens. They are mostly to be found amongst the rocks, at the foot of walls, and on hedge-banks. Roadsides, where the vegetation is covered with lime-dust, are generally prolific in *H. aspersa* as well as other snails. In many places near Pontefract a score species of land-shells may be picked up within as many yards on the lime-covered road-banks, but if the conchologist should turn a few yards into the fields he will not find a single shell. I was surprised to hear that *H. aspersa* is now collected and eaten by the working people in the vicinity of Pontefract and Knottingley, where it is plentiful, in the same way that *H. pomatia* is used in the South of England and in France and Italy. The varieties from Pontefract district are as follows:—

Var. *minor*, Moquin Tandon.—Bands obsolete.

Var. *conoidea*, Picard.

Var.—Shell very thin, nearly transparent; mouth circular; ground cream-colour; bands five, reddish brown; transverse marks of the same colour as the ground.

Var.—Shell small, dark reddish brown; no bands observable outside; transverse marks consist of rows of small oblong, yellow streaks, apart from each other.

Var.—Shell small, a prominent yellowish band in the middle of the last whorl; transverse marks straight, not zigzag.

Var.—Shell very small, being only about one inch in diameter and six-eighths in altitude. A white band in the middle of the last whorl; transverse streaks white.

Var.—Shell small; ground colour dark reddish brown; transverse streaks yellowish and zigzag; a yellow-white band in the middle of the last whorl.

Var.—Shell bandless, of a dark purplish colour; a narrow whitish line on the periphery; transverse zigzag marks remote.

Although the Pontefract district apparently offers all the conditions for a full and mature development of shells, the specimens of *H. aspersa*, so far as I have observed, do not exceed the average size, and very many are small. I have not seen one that comes up to the measurements given by Mr. Taylor for the var. *major*. I have looked over Mr. Taylor's "Life-History" of this species in the 'Journal of Conchology,' but I find that he does not touch at all on its feeding habits, or on the nature of its food.

H. nemoralis. The Wood Snail.—This species occurs in the Pontefract district in considerable abundance. Neither Gwyn Jeffreys nor Tate gives any account of its feeding habits. Although I have seen it hundreds of times on nettles and other plants, I have never actually observed it feeding on the plants. I suspect that it feeds on decayed vegetable matter, and, like others of the genus, may be much more carnivorous than is supposed. The varieties from Pontefract are as follows:—

Var. *major*, Fer.—Bands 1 2 3 4 5 and others.

Var. *minor*, Moq.—Greatest diameter three-fourths of an inch, altitude seven-sixteenths. Shell red, with one black band on the periphery and a white line beneath it.

Var. *roseo-labiata*, Taylor.—Shell pink, with a broad red band on the periphery, and a white line beneath it.

Var. *albolabiata*, Von Martius.—Two specimens; yellow, with translucent bands. Rare.

Var. *bimarginata*, Moq.—Common; variously banded.

Var. *libellula*, Risso.—Common; some nearly white.

Var. *rubella*, Moq.—Many of a light cherry-red colour, finely polished. The bandings are mostly 1 2 3 4 5 and 0 0 3 0 0. I have one with 0 0 3 0 5. Some are exceedingly thin, with conical spire.

Var. *castanea*, Moq., and var. *olivacea*, Gassies. — Various intermediate colours of these occur. Most that I have seen are inclined to olive, and bandless. I have one specimen which is very glossy and thin, of a greenish purple colour, with a white line in the suture of all the whorls. A dark brown band encircles the periphery, with a faint white line beneath it. Lip dark brown; inside of the shell purple.

Var. *hyalozonata*, Taylor.—Not yet recognised.

The band-varieties 0 0 3 0 0 and 0 2 3 4 5 are frequent. Others I have found with interrupted bands. The animal of one of the chestnut-coloured specimens was creamy-white, with a subcutaneous bluish tinge. Another (with chestnut shell) was slaty-blue, with a white median line. Another (shell yellow) was greenish brown, with a yellowish white, narrow dorsal median line. Another was a uniform light straw-colour. The animals seem to vary in colour nearly as much as the shell. Mr. Hudson tells me that the animal varies in nearly all shades from black to white. It is scarcely necessary to point out that the bands do

not commence on the first whorl, but appear sometimes on the second and sometimes on the third, and gradually increase in number. Whatever colour the shell may be, the bands are nearly always brown of different shades. Sometimes a white band occurs where the brown bands are all fused into one, and sometimes translucent bands appear on yellow shells. Mr. Wilcock, of Wakefield, has two examples of *nemoralis* which have a tooth-like projection on the pillar-lip. One of this kind might have resulted from accident, but it is singular that two should be found alike.

H. hortensis. The Wood Snail.—I have not yet observed this form on the eastern side of Pontefract, though it occurs on the western side.

H. arbustorum. The Shrub Snail.—Occurs in numbers on banks in Bondgate, within two minutes' walk of the ruined church at Pontefract; also at Monkhill, a little to the north. I have never seen this species in gardens, and seldom in woods about here.

Var. *alpestris*, Ziegl.—Forms agreeing with the description of *alpestris* occur; but if this variety inhabits low lands as well as high lands the name *alpestris* is misleading.

Var. *conoidea*, Westerl.—Conoid forms occur numerous, both large and small. I do not know what difference there is between *alpestris* and the smaller examples of *conoidea*.

Var. *marmorata*, Taylor.—In Ferrybridge Lane, but rare.

Var. *cincta*, Taylor. — A few in a nettle-bed about two miles from Pontefract; more numerous at the same place in 1884. Occurs also at Ferrybridge.

Var. *flavescens*, Moq.—Is said to occur, but I have not seen it.

H. cantiana. The Kentish Snail.—Occurs in thousands in Ferrybridge Lane, about two miles to the east of Pontefract. The shell is white when young, but some of the adults may be safely classed under the variety *albida*, Taylor. The animal here is finely tuberculated, of a light slaty-blue colour, with the sole of the foot yellowish white. Large numbers of eggs of this species and of *H. nemoralis* were deposited in a collecting canister on September 11th, 1884. I have noticed depressed and conical forms, but this species seems to vary very little. Scalariform examples are very rare. About Pontefract *H. cantiana* is to be found in ditches in great numbers, mostly hanging in the day-

time beneath the leaves of nettles and other large plants. Gwyn Jeffreys tells us nothing about its feeding habits.

H. rufescens. The Rufescent Snail.—Occurs on both limestone and sandstone, but not very numerously. I have made several journeys lately below Pontefract, and never seen a specimen. Vars. *minor* and *alba* are not rare. This species is subject to much variation and distortion. Some of the specimens are very flat, sometimes the first whorl is intorted; some have a raised spire, and some have an exceedingly deep suture with rounded whorls. The conical forms have a whorl more than the flat forms. Scalariform examples with a flat apex are frequent.

H. hispida. The Bristly Snail.—Common. The young are grey, and may easily be mistaken for *H. sericea*.

Vars. *subrufa* and *conica*.—Frequent.

H. virgata. The Zoned Snail.—Abundant in Ferrybridge Lane, and occurs both on the ground and high up in the hedgerows. The banded forms and the yellow ones are about equally distributed.

Var. *minor*, Taylor —In 1884 I observed large numbers of this variety on the lawn at Pontefract Station.

Var. *carinata*, Jeff. —Carinated adult specimens are rare. Many of the young of the type form are carinated, but some are not.

Var. *submaritima*, Des Moul.—Occurs amongst the variety *minor*.

Var. *subalbida*, Poiret. Rare.

Band variations are almost infinite. Pontefract is the headquarters in the inland parts of Yorkshire for this species.

H. caperata. The Wrinkled Snail.—Said to be less common about Pontefract than it was formerly.

Var. *ornata*, Picard.—Not unfrequent.

Var. *gigaxii*, Charp.—Found with the type.

Monst. *subscalaris*.—Rare.

H. ericetorum. The Heath Snail.—I found two or three sub-fossil shells in a bank in Ferrybridge Lane on May 26th, 1885.

H. rotundata. The Rounded Snail.—Common.

Vars. *pyramidalis* and *minor*.—Rare.

H. pygmæa. The Pygmy Snail.—Frequent in woods amongst leaves and moss.

H. pulchella. The White Snail.—Gwyn Jeffreys says the shell of this species is transparent, but Tate describes it as opaque. Judging from specimens found here the ridged form should be considered the type, and the smooth white form a subspecies or variety. On July 14th last I found several specimens of the glossy, smooth form amongst water-weeds which had been dragged from a canal. I have always found the ridged ones in dry situations on the tops of walls. The latter are frequent on walls and rocks in the vicinity of Pontefract. I have occasionally found the shell of this species covered with minute grains of sand.

Bulimus obscurus. The Dull Twist Shell.—Frequent. Generally smooth, not covered with particles of sand, or in any other way concealed.

Pupa umbilicata. The Umbilicated Chrysalis Shell.—Common.

P. marginata. The Margined Chrysalis Shell.—Abundant.

Vertigo minutissima. The Least Whorl Shell.—Frequent.

Clausilia rugosa. The Dark Close Shell.—Plentiful.

Var. *tumidula*. If this is sufficiently marked to be a variety, the short tumid form of *C. laminata* should be regarded as a variety. I have seen adult specimens of this tumid form of *laminata* with two whorls less than the type, and much more ventricose near the mouth.

Cochlicopa lubrica. The Common Varnished Shell.—Abundant.

Var. *lubricoides*.—Common as the type.

Achatina acicula. The Needle Agate Shell.—Local; gregarious. Numerous in certain places.

Fam. CARYCHIIDÆ.

Carychium minimum. The Little Sedge Shell.—Common in woods and plantations.

All the above-named snails and slugs may be found within two miles of Pontefract, and very many of them within the boundaries of the town itself. The under-mentioned species have been found at Wentbridge, about four miles to the south-east:—*Helix lapicida*, *Vertigo antivertigo*, *V. pygmæa*, *V. substriata*, *V. pusilla*, *V. edentula*, and *V. minutissima*. All these species of *Vertigo*, may be found within a limited area, where the River Went has cut a deep passage through the limestone rocks.

NOTES AND QUERIES.

The British Association.—A typographical error occurred in our last number under this heading. The address of the President of Section D. *Biology* (Prof. M'Intosh), on the Phosphorescence of Marine Animals, will be found printed in 'Nature' for Sept. 17th (obviously not Nov. 17th, as previously stated). Amongst other papers read at the meeting were the following:—On the causes of dissimilarity in the Faunas of the Red Sea and Mediterranean, by Prof. E. Hull; on *Megaptera longimana* and other Whales obtained in the Tay (1), and on the Cervical Vertebrae of the Greenland Right Whale (2), by Prof. Struthers; on the Anatomy of a second specimen of Sowerby's Whale from Shetland, by Prof. Turner; since published *in extenso* (Journ. Anat. and Phys., October, 1885, pp. 144–188); on the development of the Vertebrae of the Elephant (1), and the foot of the Horse (2), by Prof. Struthers; on the Viscera of *Gymnotus electricus*, by Prof. Cleland; on the Spiracle of Fishes in its relation to the head as developed in the higher Vertebrates, by Prof. Cleland; a new Theory of the Sense of Pain, by Prof. Hayward; on the Hybridization of *Salmonidæ*, by Dr. F. Day (*vide infra*); on Chinese Insect White Wax, by A. Hosie; on the size of the Brain in Extinct Animals, by Prof. O. C. Marsh; on the systematic position of the Chamæleon, and its affinities with the Dinosauria, by D'Arcy W. Thompson; on the origin of the Fishes of Galilee, by Prof. Hull; and on the Marine Laboratory at St. Andrews, by Prof. M'Intosh. A *précis* of each of these and some other papers which were also read will be found printed in 'Nature' for October 8th.

Haggerston Entomological Society.—We hear that a pocket-box exhibition of entomological specimens is to be held on Thursday, Nov. 12th, at 8.30 p.m., at No. 10, Brownlow Street, Dalston, when the kind co-operation of entomologists is invited. Communications may be made to the Secretary, Mr. Ernest Anderson, at the above address.

MAMMALIA.

Deer striking with their fore feet.—On reading the extract from Lord Malmesbury's "Memoirs," and the reviewer's remark thereon (p. 397), I have been reminded of two instances of a somewhat similar nature. Some years ago a friend of mine was waiting for a train at one of the forest stations (Lyndhurst, I believe), when he saw a deer, hard pressed by the hounds, make for the line, not far from the point where he was standing; but a previous long run prevented it from leaping the fence, and it was brought to bay, when it turned its back to the fence and fought the hounds desperately with its fore feet. So intent was it in defending itself that a

rope was passed around it from behind, and the hounds, having been whipped off, the deer was taken upon the platform, where it was viewed with considerable interest by the passengers. The other instance referred to is of more recent date, and caused some amusement in the locality where it happened. A young gentleman farmer, fond of "riding to hounds" and of relating his wonderful exploits in the hunting-field, found himself in close proximity to a "stag at bay," when, being anxious, I suppose, "to take the game alive," he dismounted. On approaching the deer, it immediately struck out with its fore feet most vigorously and felled him to the ground, cutting his face severely, and stunning him for a short time.—G. B. CORBIN Ringwood).

Habits of the Squirrel.—In the note under this head (p. 384) I had almost hoped to see some reference to a previous communication (p. 229) touching the destruction of the eggs of *Picus major* by the Squirrel; for I am decidedly one of the "tender-hearted people who hesitate to believe in the egg-stealing propensity of the Squirrel." And, certainly, if the evidence to be adduced on the side of the prosecution be no more really evidence than what is alleged by Capt. S. G. Reid, no man in the possession of ordinary common sense will ever believe it. The facts alleged are (1), that a single fresh egg was found in a certain nest; (2), that a week after the nest was empty; (3), that at the same date, wedged into a crack in the wood of another tree thirty yards distant, and near its top, an egg of *Picus major* was found, "perfectly sound, except for a small tooth-mark in the side." Literally there is nothing else in the statement relevant to the charge made against the Squirrel as an egg-stealer. No Squirrel is mentioned as having been seen near the tree, no proof is alleged that the small mark on the egg was a tooth-mark at all; but the writer states that he had "known Squirrels to remove the eggs from the nest of the Long-eared Owl,"—one wonders if on equally conclusive evidence,—and that there is "no doubt Squirrels were the delinquents on this occasion." One day this summer I found three Starlings' eggs and two Sparrows' eggs on my lawn, not twenty yards distant from the site of a colony of Starlings and House Sparrows breeding in the ivy, and ivy-sheltered partitioned boxes placed for their use, within a few feet of my dining-room window. If I chose to write "Notes on Natural History" on the same lines as this charge against the Squirrel is laid down, I might have written as follows:—"Egg-stealing by the Cuckoo.—This bird has this year once and again seated itself on the ridge of a gable above my bed-room window, and there repeated its well-known notes many times in succession [a fact]. In the ivy, within three to five yards of its station, were five nests of Starlings, and any number of Sparrows' nests. 'There is no doubt,' allowing for the Cuckoo's recorded predilection for eggs of other birds (whether for the alleged purpose of 'sweetening his voice' or no, does not signify), that the

Cuckoo in question removed all the aforesaid eggs and dropped them where I found them." Only this case would be the stronger of the two, because the Cuckoo could not put in an *alibi*. In reality, I am quite aware, from continual observation, that the deposit or dropping of these eggs of the Starling and the Sparrow, each "sound, except for a small *bill*-mark on the side," is the natural result of the fierce squabbles that are of perpetual occurrence between, I am sorry to say, different pairs of the Starlings themselves, as well as between some of the Sparrows and some of the Starlings. More than once I have seen the combatant Starlings fall to the ground hampered by their mutual clutch. Once the clutch was so tenacious that, after the birds had fallen, and had been on the ground for perhaps two or three minutes, I went out, passed round the end of my house and along one side, and was all but touching the struggling pair with my fingers, before they consented to loose their grasp of each other. Possibly, during the past season, I have picked up twenty eggs under the circumstances named, besides noticing several others that had either been dropped or chucked out of the nest, and had fallen within a foot of the wall. A bird's bill will make a single mark on the egg carried on its point, a feat I have seen performed more than once in my time. I very much doubt if a Squirrel—supposing one bent on such a practical joke as taking a Woodpecker's egg out of its deep nest in a tree, and carrying it to near the top of another tree, twenty feet above the ground—could perform the feat with no other cost to the egg besides a "small tooth-mark in its side." On the whole, as regards any evidence that is alleged, Capt. Reid's note seems very like "giving the poor Squirrel an ill name," and acting, as regards his "vow," on the principle declared in the case of a dog in the same category.—J. C. ATKINSON (Danby in Cleveland).

Habits of the Squirrel.—On reading the interesting notes upon this lively little rodent (p. 384), I am sorry to find that the old accusation against it of destroying the young shoots of pine and other *Coniferae* has been pretty well "proven." The destruction of pine-shoots, however, is not the only depredation for which it has to answer, if we may believe the observations that have from time to time been made of its carnivorous propensities in egg-sucking (p. 229), as well as killing young birds. Strange to say, although I have spent many hours, at different times, watching Squirrels, I never in a single instance saw one touch either eggs or young birds. I did once see an encounter between a Squirrel and Missel Thrush, but, as this bird is naturally pugnacious, and will attack any intruder who approaches its nest, I thought perhaps the Squirrel had wandered rather too closely, and was buffeted away by the over-anxious Thrush. The late Canon Kingsley informed me that, much as he loved the Squirrel, he had given orders that all seen on his grounds should be destroyed, as they undoubtedly had this carnivorous habit, and he preferred the birds to the

Squirrels. Some time since I was informed that the authorities of the New Forest had also given orders for the destruction of Squirrels, on account of the damage done by them to the young plantations of fir; but whether this order is still in force, or not, I am not aware.—G. B. CORBIN (Ringwood).

Note on the Squirrel.—With regard to the edible qualities of this little rodent, I believe there are many dwellers in the forest who have tasted its flesh, not so much perhaps from an epicurean point of view, as from a desire to talk about it afterwards; and yet I am told that if the creature is killed at a time when, and in a locality where, chestnuts, acorns, and “beech-mast” are easily obtained, the flesh, when cooked, so closely resembles that of the rabbit both in smell, taste, and appearance, that it might be mistaken for it by any person who did not suspect its origin. I was not aware that the buff or “creamy colour” of the tail in some specimens is caused by age. At various times I have seen and handled such specimens, but always supposed it to be an individual peculiarity at the time of changing the coat, for I always noticed in such cases that these yellowish hairs were much looser and more easily removed than their brown neighbours. A boy once brought me a Squirrel, the tail of which was entirely denuded of hair; and his statement was, “I caught this beautiful silver-tailed Squirrel for your collection, but when I took hold of it, its tail skinned, and all the fur came off in my hand.” I have also noticed that in most, if not in all, cases, where the tail is of a lighter hue, the long hairs decorating the ears, at certain seasons of the year, are of the same tint, and of a scanty appearance, which seems to indicate that the change affects both ears and tail; and yet it may be sometimes observed, in normally-coloured individuals, that whilst the whole of the body, including the tail, is covered with abundance of hair, the ears are comparatively bare; so that after all the lighter colour may be indicative of age.—G. B. CORBIN (Ringwood).

[On this point, see Bell’s ‘British Quadrupeds,’ 2nd ed., p. 279.—ED.]

Albino Bank Vole in Essex.—During the last week of August my cat caught in the orchard, and brought into the house uninjured, an adult albino specimen of the Bank Vole (*Arvicola pratensis*). I forwarded it to the Zoological Society’s Gardens, where it may be seen. It is a genuine albino, having pink eyes, although there is a slight sandy tint on the back. Mr. Bartlett has identified it as the Bank Vole. — EWARD ROSLING (Chelmsford).

[Donovan has figured an albino example of *A. agrestis* in ‘British Quadrupeds,’ pl. 48; and another albino specimen was caught alive at East Bergholt, near Colchester, in November, 1872, as recorded in ‘The Field’ of Nov. 30th, 1872.—ED.]

BIRDS.

Pied Flycatcher and Night Heron in Clackmananshire.—Early last spring a Pied Flycatcher was shot by a gamekeeper in this county on the banks of a small stream running into the Forth, not far from the town of Alloa. I expect to have the specimen in my possession shortly. Not far from the same place a fine specimen of the Night Heron was obtained in May, 1879, which, I think, has not hitherto been recorded.—W. ERSKINE (Alloa House, Alloa, N.B.).

[The Pied Flycatcher is doubtless an annual summer visitor to Scotland, but the Night Heron is rare there. It is rather curious that one of the latter birds was shot off a tree on the banks of the Black Devon, adjoining Alloa Park Policies, by one of Lord Mar's keepers, 23rd May, 1879.—ED.]

Food of the Hobby.—Through the kindness of Mr. Schumach I examined the contents of the stomach of a Hobby (*Falco subbuteo*), which was shot at Caunton, Nottinghamshire, early in September last. The food consisted principally of coleopterous insects. I noticed particularly that the head of each was invariably wanting, and, so far as I could determine from the wing-cases, some of them belonged to the weevil family. There were no remains of either birds or mice. In addition, however, I discovered the bodies of five or six large moths, more or less injured by the process of digestion, but all evidently of the same species, and swallowed whole. A careful inspection enabled me to identify them as the Yellow Underwing (*Triphæna pronuba*).—W. BECHER (Hill House, Southwell, Notts).

Short-eared Owl in the South of England.—During the winter months this species is of somewhat frequent occurrence in this part of Hampshire, in some winters being more abundant than in others; but has it ever been known to nest so far south? The reason of my asking is this: in May last a gamekeeper trapped and brought me an owl of this species. He had previously informed me that there was at least one pair, if not more, of a dark-coloured owl, which frequented the extensive heaths over which his "beat" lay, and that they were seldom seen in the woods like the other owls; and he had seen them on one or two occasions in the day-time. So I asked him to shoot one for identification, with the result above recorded. When he brought me the bird in question I naturally suggested that he should keep a look-out for any nest that might be built, at the same time telling him its probable situation, upon the ground. At different times during the summer he has seen the birds—on one occasion a pair flying together—but not in any particular locality indicative of nesting; in fact, he says that sometimes he did not see them for a week or more, and then he would come across them in quite a different spot. As I suggested a possibility of his having been deceived about the species he saw flying in

July, he offered to secure me another specimen as he had done in May, but I declined. On looking through my diary I find that the majority of cases in which this bird has come under my observation have been between November and March, so that the occurrence of the species in May was unusual, though I did not think it worth recording at the time. I have on more than one occasion seen the Long-eared Owl flying over the heaths, but always in the evening (Zool. 1877, p. 20), and, as this species occasionally nests in the neighbourhood, it is just possible that from their comparatively erratic appearance, the owls seen by my friend the game-keeper were referable to this and not to the Short-eared species. Nevertheless, it would be interesting (to me) to know whether the latter has ever been known to nest in the southern counties of England.—G. B. CORBIN (Ringwood).

Winter Visitors in Northumberland.—On Sept. 27th, while on the Town Moor, Newcastle, I observed five Wild Swans at a great height, flying from south to north. Taken in conjunction with the fact that during the previous week, in North Northumberland, particularly near the sea-coast, the Redwing (*Turdus iliacus*) had already arrived, a month before its wonted time, may not this portend an early and severe winter? Snow has, in fact, already fallen on the Cheviots; and near Wooler, on Sept. 25th, I noted several flocks of Wild Ducks and Wild Geese, but all flying northwards.—R. DUNCOMBE JEWELL (Newcastle-on-Tyne).

Redwing nesting in Yorkshire.—In 'The Zoologist' for September I notice that Mr. Browne, in his "Notes on the Vertebrate of Leicestershire" (p. 334), mentions the Redwing as breeding in that county. In the year 1879 I found what must have been the nest of a Redwing at Harrogate, in Yorkshire. This nest was built in the forked branch of a small oak, in a small wooded coppice, called Barber's Coppice; it was placed about six feet from the ground, and contained four eggs of a greenish white ground colour, the green shade very faint, speckled with a light shade of reddish brown, and about the same size as a Song Thrush's egg. — RILEY FORTUNE (61, Grainger Street, Newcastle-on-Tyne).

[The description given of the eggs certainly applies to those of the Redwing, which are not unlike small varieties of the Blackbird.—ED.]

Note on the Great Crested Grebe.—Mr. T. E. Gunn tells me that he has noticed the eye of the Great Crested Grebe (*Podiceps cristatus*) to vary greatly in colour, being sometimes lemon-colour, sometimes red, and sometimes brown. A most singular instance of this sort, which could not be accounted for by age or season, occurred last Christmas in an example shot on Ranworth Broad on Dec. 30th. Ten minutes after death I held it up by its legs, and its eyes were then a delicate buff with a tinge of yellow, but the next morning they had changed to a bright clear currant-red. Mr.

Booth has some remarks on the point in his 'Descriptive Catalogue of Birds' (p. 194), which are taken from practical observation. He says:—"While in the down the eye of this species is a bright grey. During their first autumn and winter I have observed the iris both a dull orange and a bright lemon-yellow; this gradually changes until it assumes the brilliant red which is seen in the adult in summer." In an example shot at Hempstead some years ago in November, the eye was noted down at the time as red, and no doubt correctly so; but I have had no recent opportunity of handling any Grebes in the flesh. A sudden change in the eye from one colour to another in the space of a few hours is incomprehensible, and very misleading to any one who is in the habit of noting down the colours of the soft parts. On June 15th a Great Crested Grebe quitted her eggs on Fritton Lake without covering them. On the 25th I saw her again quit the eggs, and saw her cover up the eggs in doing so. The action was almost momentary,—a couple of tugs with the beak, and that was all. Mr. Seebohm considers that the eggs are not covered by the Grebe until she begins to sit ('British Birds,' pt. iv., p. 457). Certainly her object must be to hide them from view, and it is singular if she does not hide them when they are freshly laid. In Mr. Seebohm's vignette (p. 464) the nest is represented as more cup-shaped than any I have seen on our Broads.—J. H. GURNEY, jun. (Northrepps, Norwich).

[We have observed a similar change in the colour of the iris of the Pochard, *Fuligula ferina*, and have remarked that it is yellow in immature birds, orange as they grow older, and red in the adult.—ED.]

Birds at Sea.—On August 23rd, while homeward bound between Gibraltar and Plymouth, in lat. $42^{\circ} 45' N.$, long. $11^{\circ} 07' W.$, a number of Grey Phalaropes (*Phalaropus fulicarius*) were seen, some sitting upon the water, and others flying past the ship. They were first noticed about 9 o'clock in the forenoon, and in the course of an hour I counted more than a hundred of them. They were all in winter dress. The next day, about noon, when in lat. $44^{\circ} 50' N.$, long. $9^{\circ} 45' W.$, seven Cranes (*Grus cinerea*) approached the ship, wheeled round her several times, and then flew off, low over the sea, in a south-easterly direction. The same afternoon we were visited by a Titlark, and the following day, in lat. $46^{\circ} 33' N.$, long. $7^{\circ} 28' W.$, two Chaffinches and a Humming-bird Hawk Moth (*Macroglossa stellatarum*) enlivened us by their presence.—GERVASE F. MATHEW (Instow, N. Devon).

Ring Ouzel feeding on Cherries.—The fact (as related at pp. 346, 386-7) of the Ring Ouzel's partiality for cherries is no new one. In Hutchinson's 'History of Cumberland,' 1794, p. 457, parish of Ulswater, speaking of this species he says:—"It is commonly called the Fell Throstle. When perched on the edge of a rock, it makes the hills echo with its loud note. It delights in black cherries, of which there is a great

abundance in Martindale: here they breed, but disappear in winter." Macgillivray also ('British Birds,' vol. ii., p. 103), quoting from the Rev. Nathaniel Paterson, in the statistical account of the parish of Galashiels, in Selkirkshire, observes:—"The Moor Blackbird, too, has of late years become a troublesome spoiler of the garden—a daring thief that comes before the windows and carries off a plum nearly as large as itself, showing by its chatter more of anger than of fear when it is disturbed in the work of depredation. Currants, gooseberries, cherries, plums, and the finest wall-fruit are its prey." In the autumn the Ring Ouzel regularly visits the gardens attached to the shepherds' houses in Cheviot, and is more pertinacious and determined in its attacks on the fruit than any of its congeners.—JOHN CORDEAUX (Great Cotes, Ulceby).

Varieties of Wood Pigeon and Magpie.—It may interest Mr. Marshall to know that I have a pure white Wood Pigeon in my possession, belonging to Mr. Alfred Beaumont; but I know nothing of its history. I have also one with the upper parts mottled with various shades of drab, killed, I believe, in Lancashire. Besides the varieties enumerated by Mr. Aplin, two of which, I perceive, are those in Mr. Whitaker's collection, I recently sketched a third from the same collection, which has the head, breast, and back sooty brown, primaries and tail grey, scapulars and under parts dull white, bill inclined to yellowish, legs normal. I have also in my possession another having all the parts usually black, of a very pale grey.—S. L. MOSLEY (Huddersfield).

Albino Birds.—During the past year I have observed an unusually large proportion of albino and mottled birds. Recently at Richmond Park I saw a white Pheasant, and at Kingston a Rook with a white wing regaling itself with walnuts; also two black-and-white Blackbirds, and a pure white bird supposed to be a Swallow have lately been seen there. In addition, I saw and captured a pure albino Sparrow last year.—F. V. THEOBALD (Kingston, Surrey).

A remarkably tame Wryneck.—I have or some time been thinking of writing to you about a bird, which I have called my odd Wryneck: odd because it is a single bird, and also because its ways have been, to my mind, so very odd. For the last three years a young Wryneck has come to my garden by itself. It is so tame that it has let my gardener and his boy take it up in their hands and pet it, and when they have let it fly it has gone to the nearest tree; and two Chimney Swallows have made swoops upon it, but have not hurt it. I have myself handled it. I have never seen any old Wryneck with it. I have heard Wrynecks when they have come at their usual time, but have never seen one with the young one I am writing of. This is the third year in which it has appeared in my garden. I send this account without attempting to explain it, but I

thought if any readers of 'The Zoologist' have met with anything like it they would kindly mention it. — EDWARD JAMES MOOR (Great Bealings Rectory, Woodbridge, Suffolk).

Curious Place for a Wren's Nest.—In the picture gallery of Charlton Park, near Malmesbury, the seat of Lord Suffolk, is a glass case containing the skin and feathers of a crow. It had been caught and nailed to a tree with other vermin, and between the wings a Wren built a neat little nest. With wonderful dexterity the tiny bird contrived to fasten together the wings, the entrance to the nest being where the crow's breast had been, and here the family of little Wrens was reared. The nest was observed, and, when its occupants had flown away, Lord Suffolk had it carefully removed and placed in his picture gallery.

Wood Sandpiper in the County of Wicklow.—Hitherto the Wood Sandpiper has only been included in the Irish avifauna on very slight and unsatisfactory evidence, and I felt obliged to exclude it from my recently published 'List of Irish Birds.' But I am now enabled, through the kindness of my friend Dr. Benson, to announce the occurrence of the first well-authenticated example, which I have just examined, and which was shot by Mr. Smith Cregan (of the Royal Engineering Department) on the 23rd of last August at Calary Bog, near the Sugar Loaf Mountain, Wicklow. It was alone, and its flight was thought to resemble that of a Snipe.—A. G. MORE (Science and Art Museum, Dublin).

FISHES.

Hybridization of the Salmonidæ.—At the recent meeting of the British Association Dr. Francis Day read a paper on this subject, based upon the results of experiments made at Howietown, near Stirling. From these experiments it would appear that the following conclusions may be drawn:—(1) Salmon and Trout, Trout and Char, and different species of Char may interbreed and give rise to fertile hybrids; (2) Hybrids reared from Lochleven Trout eggs fertilized by Salmon breed in their fourth year, like young female Salmon kept under similar conditions; (3) The anadromous instinct is not lost in these Trout and Salmon hybrids; (4) Judging from the period of breeding in the above-mentioned hybrids, the male element is prepotent; (5) In hybrids reared from Lochleven Trout eggs, fertilized by American Char, the male is prepotent, judging by the colour of the offspring; (6) In hybrids reared from American Char eggs, fertilized by Lochleven Trout, the female element is prepotent, judging by the colour of the offspring; (7) In hybrids reared from American Char eggs, fertilized by British Char, the male element is prepotent; (8) In all cases of hybridization numerous instances of malformation occur amongst the offspring, and great mortality; (9) The age of the parent fish has an important bearing on the vitality of the offspring.

The young of the Garfish.—Early in September last, Mr. M. Dunn, of Mevagissey, was kind enough to send me several specimens of a very small fish from shoals abounding in Mevagissey Bay, and which he identified as the young Garfish, *Belone vulgaris*, Yarrell ("Gerrick" in West Cornwall). The specimens sent varied from half an inch, to an inch and a half in length, over lower jaw and all. The first point which attracted my attention was that the mandible of the upper jaw was normal, ending just in front of the maxillaries, whilst the mandible of the lower jaw was projected to about one half of the length of the fish. This peculiarity precisely coincides with that on which Couch persuaded Yarrell to declare a specimen to be the European *Hemiramphus* (*H. longirostris*), but Mr. Dunn, in 1880 ('Land and Water,' Sept.), pointed out the probable error. I am now able to confirm Mr. Dunn's opinion, by saying that in all the larger specimens which he sent me I detected the green back-bone, which is characteristic of the Garfish. I think our joint observations may have disposed of the "Half-beak" Fish, in which Yarrell apparently had no faith, but the plentiful occurrence during the last summer of large shoals of very small fish (locally known as "bait" or "fry") of all sorts, including shoals of this immature Garfish, may account for an unusual incidence of Sharks which feed on very small prey.—THOMAS CORNISH (Penzance).

MOLLUSCA.

The Mollusca of Kent, Surrey, and Middlesex.—The following important localities were accidentally omitted on pp. 381—383:—*Pupa secale*, Sudbury, near Harrow (J. E. Harting), Mickleham (Cooper); *Vertigo pusilla*, Sandwich (Montagu); *Azeca tridens*, one near Fulham (A. F. Sheppard); *Acme lineata*, quarry near Wildernesse, Kent (Smith); and on p. 302 may be added *Limax maximus* var. *Ferussaci*, Sutton, Surrey (T. G. Fenn). This and New Quay (p. 389) appear to be the only ascertained South of England localities for this very striking variety.—T. D. A. COCKRELL (Bedford Park).

Notes on some Calvados Mollusca.—My friend Mr. G. F. Payn, who last year visited Switzerland (p. 267), has this year been collecting for me in the North of France, and has sent me twenty-seven species from the neighbourhood of Cabourg-sur-Mer, Calvados. The list includes the following species:—*Cardium norvegicum*, *Macra solida*, *Pholas candidus*, *Solen pellucidus*, *Cardium tuberculatum*, *Pecten maximus*, *P. varius* var. (dark brown mottled with reddish), *Cardium edule*, *Donax vittatus*, *Trochus magus*, *Natica catena*, *Scaloria communis*, and *Sepia* sp.? (a fragment). It is very interesting to compare this list with those of the opposite shores of England. All the above, except three, are found all along the south coast in suitable localities, and are included in the Kentish fauna. But *Trochus magus* does not venture through the straits of Dover; *Cardium tuberculatum*

does not seem to occur in Sussex, but is common in Devonshire; and *Solen pellucidus* is found in the Scilly Islands, but is either absent or very rare further east. The fresh-water species are *Bythinia tentaculata*, *B. Leachii*, *Planorbis complanatus*, *P. vortex*, *Limnæa auricularia*, *L. peregra* var. *ovata*, and *L. stagnalis*. All these species are more or less common in the South of England. The Terrestrial species are more interesting:—*Hyalina Draparnaldi*, *Arion ater* var. *rufa* (dark olive-brown), *Helix aspersa*, *H. nemoralis*, *H. virgata* (and bandless variety), *H. pulchella* (type form), *Cochlicopa lubrica* var. *minor*, *Cochlicella acuta* vars. *strigata* and *alba*, and *Pupa marginata*. All these species are found on the south coast of England; but *C. acuta* probably does not occur east of the Isle of Wight ('Naturalist,' 1885, p. 181), and *Hyalina Draparnaldi* has not been found nearer than South Devon. The varieties of *H. nemoralis* and *C. acuta* were very interesting. Mr. Payn sent sixty-one examples of the former, of which twenty-one were *rubella* 12345, ten *castanea* 00000—some with linear abrasion very well marked (*antea*, p. 115), nine *libellula* 12345, six *rubella* 00300, and there were two each of *libellula* 00000 and 10345, three of *libellula* 00300—one of these appeared pale greyish when it contained the animal, but light yellow without it, resembling some shells I took at Crayford, in Kent (Sci. Gos. 1884, p. 236), and one each of *libellula* 123(45), *rubella* 00000, 123(45), and (12)3(45), *olivacea* 00000, and *castanea* 0₂340, 00₃40, and 00₃00. Several of these are not mentioned in Moquin-Tandon's list of French varieties. The three last mentioned are instructive, as showing the gradual disappearance of the bands, 1 and 5 being the first to go, then 2, 4, and lastly 3. This rule does not hold good in all cases, however. Seventy-five examples of *C. acuta* were sent, and it is very remarkable that not one is of the typical (banded) form, most being *strigata*, but many altogether without markings.—T. D. A. COCKERELL (51, Woodstock Road, Bedford Park).

INSECTS.

The Industry of Bees.—Few people have any idea of the labour expended by bees in the gathering of honey. Here is a calculation which will show how industrious the "busy" bee really is. Let us suppose the insects confine their attention to clover fields. Each head of clover contains about sixty separate flower-tubes, in each of which is a portion of sugar not exceeding the five-hundredth part of a grain. Therefore, before one grain of sugar can be got, the bee must insert its proboscis in 500 clover-tubes. Now there are 7000 grains in a pound, so that it follows that 3,500,000 clover-tubes must be sucked in order to obtain but one pound of honey.

